Remarks

The amendments to the Specification

The amendment to page 4, line 16 puts the page numbers in the desired form; the amendments to pages 8, 13, and 16 provide clear definitions of the acronyms that Examiner has objected to.

The amendments to the claims

Examiner will immediately see that the amendments to the claims are fully supported by the Specification as filed and overcome both Examiner's objections to the claims and the rejection of claims 119 and 124 under 35 U.S.C. 112, second paragraph. It should be further pointed out that the amendments do not substantially affect the scope of the claims.

Traversal of the rejections

Examiner has rejected claims 112-114, 119, 120, 124, 125, 128, and 131 as anticipated by Draper. Draper has been among the cited references since the beginning of prosecution in this application almost five years ago, but has been applied to claims 112-131 for the first time in this Office action. Claims 112-131 have been in the application since 3/12/02, but were rejected as not being supported by the original Specification. Applicants successfully traversed that rejection in their appeal brief filed 2/27/03.

In their response of 10/18/04, Applicants described the disclosure of Draper and its relationship to claims 112-131 as follows: "Draper is primarily concerned with keeping caches consistent with their source databases. He states at col. 5, lines 9-10 that the data items "may be organized in a hierarchical database, a relational database, or another organization" and at col. 8, lines 14-22 that the cached data and the master data may have different database formats. He also indicates at col. 13, lines 51-55 that his caches may fetch a data item on miss. His exemplary embodiment, described at col. 9, lines 33-53, is a system for publishing documents on the Web. The data items stored in the master system are documents in various file formats. When the publishing system publishes a document, it converts the document into an HTML format and sends the document to the

cache. In the cache, the document is of course accessible by URL, and not by a query. Even if the cache in Draper can be taken to be a database system, there is absolutely no disclosure in Draper concerning how data is located in the cache or what happens in the cache when a miss occurs. It is of course exactly that which is the subject matter of Applicants' claims 112-131".

Patentability of the claims over Draper

Given that Draper is not concerned with queryable caches, but rather with keeping any kind of cache consistent, it is no surprise to find that the locations cited by Examiner in Draper do not disclose what Applicants are claiming. The broadest claim is claim 112, which, as amended, reads as follows:

> **112.** Apparatus for responding to a request, the request including one or more specifiers referring to one or more objects in a distributed database system that includes a plurality of database systems and
> the apparatus comprising:
> a first database system of the plurality; and
> a redirector which responds to the request when the request includes a specifier that cannot be interpreted in the first database system by causing the request to be executed at least in part in a second database system of the plurality, the request otherwise being executed in the first database system.

Examiner states that the "first database system" is disclosed at col. 8, lines 1-10 and FIG. 6 (602, 606-DB1), and indeed, FIG. 6 shows two database systems 602 and 604 which contain databases DB 1 through 3 and replicas 606 of DB 1 and DB2. The other element of claim 112 is "a redirector which responds to the request when the request *includes a specifier that cannot be interpreted in the first database system* by causing the request to be executed at least in part in a *second database system* . . ." For the redirector, Examiner cites col. 8. line 11-col. 9, line 32 and FIG. 6, in which Examiner interprets the arrows connecting master system 602 to caches 608 and 610 and master system 604 to those caches as the redirector.

An immediate problem with this rejection is that the arrows connecting master system 602 and 604 to caches 608 and 610 are pointed from the master systems to the caches, which is the wrong direction for the redirection described in the claim. The redirection described in the claim goes from the database system which does not have the object (the cache 508 or 610 in FIG. 6) to the database system that does (master system 602 or 604 in FIG. 6).

When col. 8, line 11-col. 9, line 32 are studied in detail, the suspicions aroused by the directions of the arrows in FIG. 6 are confirmed. The discussion at the cited location concerns how the system of FIG. 6 uses

> ... indexed tags 204. Tags 204 stored on a given master system 602 or 604 record the most recent changes that have occurred for each data item 202 stored in that master system. For each tracked event type that can occur on data items 202 in the master system, the logging facility on the master system stores a tag 204 value equal to the highest database sequence number at the time of the event for the data item 202 being operated on. If the same event occurs on the same data item 202 at a later time, the previous tag 204 value is simply changed to the current database sequence number because only the last occurrence of the event is needed for cache synchronization. (col. 8, lines 31-40)

When a cache wishes to synchronize itself with a master system, it requests from the master system a list of the tags for the data items that have changed since the last time the cache requested a list (col. 8, lines 46-54). The master system provides the list, and the cache uses the list to determine the operations that are necessary to synchronize the cache with the master system (col. 8, lines 62-65). The remainder of the cited location describes how the list of tags is accompanied by a token that indicates the most recent event returned on the list and how the cache returns the token to the master system as part of its next request for a list of tags. The arrows in FIG. 6 thus show the flow of lists of tags and the associated tokens from the master system to the cache.

None of this, of course, has anything whatever to do with the redirectors of independent apparatus claims 112 and 125. Indeed, as already pointed out, the only disclosure at all in Draper about what happens when an object is not present in a cache is at col. 13, lines 51-55, which states that an advantage of Draper's system is that the overhead of load on miss is avoided. Consequently, independent claims 112 and 125 are not anticipated by Draper and those claims and all of the claims dependent from them are patentable over Draper.

Given the close relationship between the method, apparatus, and Beauregard claims in the application, it is not surprising to find that Examiner's rejections of independent method claims 119 and 128 fare no better. Each of these claims has redirection steps (lines 6-8 in claim 119, lines 7-10 in claim 128), and as noted in the discussion of the apparatus claims, Draper discloses nothing whatever about redirection. In her rejection of the method claims, Examiner finds a disclosure of the redirection steps at col. 6, lines 15-36, col. 9, lines 13-23, and at 602 and 608 in FIG. 6. As already pointed out in the discussion of the apparatus claims, col. 9, lines 13-23 concerns the tokens that Draper's system employs with his tag lists and FIG. 6 shows how the tokens and tag lists are used to update the caches. Col. 6, lines 15-36 describes how a tag is associated with a data item, what the contents of a tag are, and how the tag is used in updating a cache. None of this has anything to do with redirection either, and independent claims 119 and 128 are therefore also not anticipated by Draper and those claims, all the claims dependent on them, and independent Beauregard method claims 124 and 131 are all patentable over Draper.

It should further be again pointed out that there is no disclosure whatever in Draper of anything like the relationship between the first and second database systems of Applicants' claims. There is no redirection between master systems 602 and 604 in Draper and also none between cache A, cache B, and the master systems. Further, nothing in Draper indicates that his caches are queryable and therefore "data base systems" as that term is used in Applicants' claims. The most that is stated is that his

caches may use the same data formats as the databases in the master systems. (col. 8, lines 14-22), but the use of the same formats does not mean that the data in the caches is queryable. A consequence of this lack of disclosure of anything like the relationship between the first and second database systems is that claims 113-116 and 120-121 are all patentable in their own rights over Draper.

As for the rejections under 35 U.S.C. 103, those rejections depend upon the anticipation by Draper of the claims the rejected claims are dependent from. Since Draper does not anticipate those claims, the combination of references does not disclose all of the limitations of the rejected claims, Examiner has not made his *prima facie* case of obviousness, and the claims are patentable over the combination of references.

Patentability of the claims over Ronström

Ronström's system is described in his *Abstract* as follows:

> The present invention relates to a method of regulating the load in a distributed database (A), where the information within the database is distributed between several different nodes (**1, 2, 3,** . . . , k) belonging to the database. A request (**4***a*) from a user (**4**) is served either by the node to which the user connects, here designated the receiving node (**1**), or by some other node after the receiving node (**1**) has forwarded the request to a node that can meet the request, this node being called the serving node (**2**). Respective nodes are given one or several key-numbers which limit the number of requests that respective nodes may accept in their role as a receiving node (**1**). The key-numbers are related to the executing capacity of the database (A).

One of the things that a node in the distributed database can do is forward a request to another node:

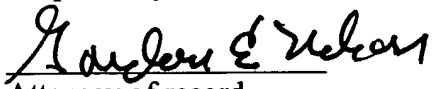
> A request **4***a* asked of a user **4** is served either by the node to which the user **4** connects, here designated the receiving node **1**, or by some other node subsequent to the receiving node having forwarded **4***b* the request to a node that can meet the request, this other node being designated the serving node **2**. For instance, if the user **4** requests access to data information that is not stored on the receiving node **1**, the request is forwarded from the receiving node **1** to the node on which the desired data information is stored. This node will then be the serving node **2**. (col. 6, line 66-col. 7, line 8)

As may be seen from the *Abstract* and from the general disclosure of Ronström's system in the patent, what Ronström discloses is not Applicants' "distributed database system that includes a plurality of database systems", but rather a single database system that contains a distributed database made up of a number of nodes. This characterization of Ronström's system is confirmed by the discussion at col. 10, lines 42-57 of how different parts of a single table may be stored on different nodes of the distributed database and of how an operation on such a table is distributed across the nodes that contain the table. Because Ronström does not disclose Applicants' "distributed database system that includes a plurality of database systems, the reference does not disclose what Applicants are claiming.

Conclusion

Applicants have amended their Specification and claims to overcome Examiner's objections thereto and to overcome the rejection of claims 119 and 124 as indefinite. The amendments to the Specification have added no new matter and the amendments to the claims are fully supported by the Specification as filed. Applicants have further traversed the rejections under 35 U.S.C. 102 and 103. Applicants have thus been fully responsive to Examiner's Office action of 1/11/2005 as required by 37 C.F.R. 1.111(b) and respectfully request that Examiner enter the claims as amended and reconsider her rejections, as provided by 37 C.F.R. 1.111(a). No fees are believed to be required for this amendment. If any should be, please charge them to deposit account number 501315.

Respectfully submitted,



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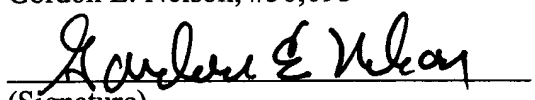
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